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ter to the margin of the leaves of the same species." With regard to the Firs, the anatomical points of most importance are; the resin ducts of which there are always two in the *Abies* leaf, readily seen in a horizontal section; the presence or absence of stomata on the upper surface; and the presence, distribution and relative size of the hypoderm cells—robust longitudinal cells, with thick walls and a very slender cavity, almost always present on the edges and keel of the leaf and often forming a stratum on the upper side. These cells seem to form the most certain distinction between *A. Fraseri*, Pursh, of the high mountains of North Carolina, our *A. balsamea*, Marshall, and *A. subalpina*, Engelmann; the first having an almost uninterrupted stratum of hypodermic cells on the upper side of the leaf; the second scarcely any; and the third, which is the western representative of *balsamea*, more abundant cells above than under it, and crowded on edges and keel. The next four species have the resin ducts close to the epidermis of the lower side, towards the edges. *A. grandis*, Douglas, and *A. concolor*, Engelmann have the hypoderm cells in interrupted strata under the upper surface of the leaf; *A. religiosa*, H. B. K., and *A. bracteata*, Don, in a continuous layer. *A. grandis* has no stomata above, *A. concolor* has. *A. bracteata* has glabrous scales, and may thus be distinguished from the Mexican *A. religiosa* and all other firs. The 8th and 9th species have the resin ducts, like the last four, close to the epidermis of the lower side, and in fertile branches equidistant from the edges and keel, but it is questioned whether 8, *A. nobilis*, Douglas, and 9, *A. magnifica*, Murray, are really distinct; Dr. Engelmann, inclines to think they are; Drs. Hooker and Gray, that they are not. In giving this diagnosis we have omitted all the other distinctions of more service in determining the trees when met with, as we wished to give an idea of these crucial anatomical points in the case of doubtful specimens, and we have not perhaps done justice even to these. After all it is very difficult to tie nature down to logical exactness. We see in Nature, Ap. 18th, that Mr. J. Gorham, in a paper read before the Linnean Society undertakes to detect the genus of an umbelliferous plant from an examination of the venation of the merest fragment. We wish we had room to extract some more graphic parts of the description of these noble trees.

§ 236. ***Opuntia Ficus-Indica*, DC.**—I have received from Dr. C. H. F. Peters, of the Hamilton College Observatory, the following note, commenting on my note in the BULLETIN lately. He was "reminded of the hedges in Sicily and of the impenetrable cactus fields on the lavas of Mt. Etna. It is the plant first of all used to break down the lava beds. A handful of soil is put down, and a cactus joint (or leaf) thrown upon it. That soon takes root, and the rock weathers very fast. So that, after a few years, as the second plant for aiding in making vegetable soil, fig trees are set out. I liked the fruit of the cactus very much."

You may remember that Dr. Peters made the first thorough survey of Mt. Etna, before 1840, at the expense of some German duchy. His survey is quoted in Humboldt's *Cosmos*. I. H. H.

§ 237. **Rediscovery of a lost *Sphaeria*.**—On returning from a